

THE GENUS BUATHRA CAMERON IN EUROPE¹⁾

(HYMENOPTERA, ICHNEUMONIDAE)

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ABSTRACT

Three European species of *Buathra* Cameron, 1903, can be distinguished. Designations of lectotypes are presented for *Ichneumon laborator* Thunberg, 1822, *Cryptus curvicauda* Thomson, 1896, and *Cryptus divisorius* Tschek, 1872. *Cryptus medius* Szépligeti, 1916, does not belong to *Buathra* (Townes, 1970). The paper is illustrated by five figures.

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METHODS AND ABBREVIATIONS

External measurements were taken with an ocular micrometer (1 cm at 10 ×) on a Zeiss stereo microscope. Absolute measurements were taken at 10 × enlargement. The length of the ovipositor was measured from the apex of the gaster. Most relative measurements were taken at 40 ×. For length: breadth relations I use the term index. As differences in indices are often very small, students are advised to take measurements carefully. For terminology I follow Richards (1956) and Townes (1969).

OOL = distance from the outer edge of a lateral or posterior ocellus to the compound eye (ocular-ocellar line).

POL = distance between the inner edges of the two lateral ocelli (postocellar line).

¹⁾ For keys to the genera of *Cryptina* see Van Rossem (1969b) and Townes (1970).

INTRODUCTION

The genus *Buathra* was proposed by Cameron (1903). A full description was given by Townes (1970). Separation of *Buathra* from *Meringopus* is rather difficult and arbitrary as it is based on the variable position of the axillary vein in the hind wing. The establishment of *Buathra* is thus controversial and in my opinion *Buathra* could be merged into *Meringopus*. An example of a species in an intermediate position is *Meringopus reverendus* Van Rossem, 1969a (Townes, 1970: 193).

Townes (1970) placed *Cryptus medius* Szépligeti, 1916, in *Buathra*. This cannot be valid because Szépligeti's lectotype does not have the dorsal tentorial pits. I consider *C. medius* to be a species of *Cryptus* (Van Rossem, 1969b).

Assessment of western European *Buathra* material shows that three taxa can be distinguished. One of these is *B. divisoria*, an alpine species, which presents no problems. The two others, in older literature referred to as "*Cryptus tarsolencus*" and "*Cryptus laborator*", were difficult to separate and at first offered no satisfactory evidence for considering them as independent species (Habermehl, 1918, 1920; Roman, 1903, 1910). However, after prolonged study I found a character that separates at least the females of the two above mentioned taxa with reasonable certainty. Whether males can be matched is uncertain. Consequently the lectotype of Thunberg's (1822) *Ichneumon laborator* cannot contribute much to our knowledge. It is clear from his text that Roman (1912) did not take Thunberg's species for the same as "*Cryptus tarsolencus*" of authors, thus we could for the sake of stability best follow Roman and continue to use the name "*laborator*" for the other taxon. Roman (1912) placed *Cryptus fulvipes* "Kriechbaumer ap. Magr." in the synonymy of *Cryptus laborator* Thunberg. From Magretti's (1884) original description it is clear that also in this case there is question of male type material, which makes certain identification impossible. It should be noted, that Kriechbaumer never described a *Cryptus fulvipes* and consequently Magretti is the author. As the name *fulvipes* has no priority, we can best leave the question for what it is.

Key to the species

Females

1. Gena slightly concave just behind the lower articulation of mandible (Fig. 1). Ovipositor about the length of hind tibia *B. divisoria* (Tschek)
- Gena not concave. Ovipositor conspicuously longer than hind tibia 2
2. Postanellus : ovipositor tip (distance between nodus and apex, Fig. 2) > 1.0 . Ovipositor somewhat upcurved, nodus rather strong (Fig. 3). Anterior propodeal carina present. Index of hind femur > 5.6 *B. tarsolencus* (Schrank)
- Postanellus : ovipositor tip (Fig. 2) < 1.0 . Ovipositor straight, nodus rather weak (Fig. 4). Anterior propodeal carina absent. *B. laborator* (Thunberg)

Males

1. The following characters in combination: gena concave just behind the lower articulation of mandible (Fig. 1). Propodeal spiracle almost round. Both propodeal carinae well developed, posterior one sublaterally rather strongly dentated *B. divisoria* (Tschek)

- Characters not combined as above 2
 2. Anterior propodeal carina present *B. tarsoleuca* (Schrank)
 — Anterior propodeal carina wholly or partly absent . . . *B. laborator* (Thunberg)

Remark: this distinction between the males of *B. tarsoleuca* and *B. laborator* is unreliable.

Buathra tarsoleuca (Schrank, 1781)

Ichneumon tarsoleucus von Paula Schrank, 1781, Enumeratio insectorum austriacae indigenorum: 359 (type lost: nomen dubium), ♂.

Cryptus curvicauda Thomson, 1896, Opusc. Ent. 21: 2350, ♀.

The type material of *Ichneumon tarsoleucus* Schrank, all males, is lost. Irrespective of the fact that males remain undeterminable, it is not possible to decide on the identity of Schrank's material from the short description. Thus *Ichneumon tarsoleucus* is a nomen dubium. The interpretation of "*Cryptus tarsoleucus*" of authors goes back to Gravenhorst (1829: 447) and his first reviser, Taschenberg (1865: 71). A specimen that is probably an original of Gravenhorst is still in the collection at Wrocław, but it is rather aberrant from the general conception of authors, nor is this specimen mentioned by Gravenhorst or Taschenberg; therefore I have not selected it as the neotype but have marked it with an orange label stating: "*Cryptus tarsoleucus* (Schrank) 3rd specimen in Gravenhorst coll."

Some important characters of the female. — Apical part of ovipositor between nodus and tip (of upper valve) (Fig. 3) shorter than postanellus. Index: > 1.0 . Anterior propodeal carina mostly present, at least medially. Gaster with a tendency towards a deep reddish brown or purple reddish tone. Ovipositor nearly always upcurved, nodus strong (Fig. 3).

Male. — I have not succeeded in associating the proper male with the *tarsoleuca* female. The character given in the key (presence of anterior propodeal carina) is unreliable.

With respect to the type material of *Cryptus curvicauda* Thomson, H. Andersson, at Lund, reported as follows: There are no specimens under this name in Thomson's collection. All the other species mentioned in *Opusc. Ent.* 21 are represented in the collection and also another species labelled "*bellitarsis*". This "*bellitarsis*" is represented by six females, labelled "OG" = Sweden, Östergötland (the type area of *curvicauda*). I think that the females from Östergötland labelled as *bellitarsis* must be the syntypes of *curvicauda* and that Thomson first intended to use that name and forgot to change the label.

Characteristics of the lectotype of *Cryptus curvicauda*. Female, 16.0 mm. Front wing 11.8 mm. Labels: a small white tag "OG", a modern green label "1968/11"; a red rimmed box label "*bellitarsis* m." in ink. Index of apical part of ovipositor and postanellus, 1.2. Anterior propodeal carina indicated medially. Gaster reddish brown. Ovipositor curved, nodus strong. Lectotype labelled accordingly and identified as *B. tarsoleuca*. Two other specimens were labelled paralectotype.

Occurrence. — The female is likely to occur on peat-moors, perhaps in the vicinity of fens.

Material examined. — France: ♂, La Grave, 1500 m, leg. Becker (coll. Dittrich) (ZI). Italy: ♂, Bolzano, VI.1913, leg. Smits van Burgst (ELW). Netherlands: ♀

Gieten, 17.VI.1950 (coll. Betrem); ♀, Dwingelo (Dr.), Davidsplassen, 27—31.VII.1963, leg. Ph. Pronk (RMNH); ♀, Terlet (Gld), 19.IX.1966, leg. R. T. Simon Thomas (PD); ♀, Leuvenum, VII.1926, leg. H. J. Klaassen (MA); ♀, Winterswijk, 29.VI.1921, moeras bij de Vlijt (?), coll. Koornneef (ELW); ♀, Oisterwijk, 1.VIII.1921, op *Peucedanum palustre*, coll. Koornneef (ELW); ♂, den Dolder, 21.V.1931, op *Anthriscus*, leg. Bouwman, coll. Koornneef (ELW). Poland: ♀, Orlach (near Wrocław?), 13.VII.1880, coll. Dittrich (ZI); ♀, Myszyniec, 1949 (coll. J. Glowacki). Sweden: 3 ♀, Östergötland, coll. Thomson (lectotype and paralectotypes of *Cryptus curvicauda*) (ML).

***Buathra laborator* (Thunberg, 1822)**

Ichneumon laborator Thunberg, 1822, Zap. imp. Akad. Nauk 8: 273, ♂.

Cryptus fabricii Schiødte, 1857, in Rink, Grønland geografisk og statistisk beskrevet 2 (3): 62, ♀ ♂.

Cryptus fulvipes Magretti, 1884, Bull. Soc. Ent. Ital. 16: 99, ♂.

Characteristics of the lectotype of *Ichneumon laborator*. Male, 12.9 mm. Front wing 8.5 mm. Labels: one label in ink with Roman's handwriting "*Cryptus laborator* Thbg" (Roman, 1912). With the specimen is an old box label in ink (Thunberg's handwriting?) "laborator T.", in the left bottom corner is written "Sv" (Suecia?). Lectotype hereby designated. Head black. Antennae with tyloidae on segments 18—26. Frons rather concave, with a distinct pit dorsolaterally of each antennal socket. Thorax black. Anterior propodeal carina mesally indicated. Posterior propodeal carina complete, sublaterally dentated. Index of propodeal spiracle, 2.5. Wings slightly infusate. Nervulus somewhat antefurcal. Axillary vein (3A) in the hind wing convergent to inner margin. Index of hind femur, 6.0. All femora yellow red. Gaster slender, with first tergite black, polished. The following tergites alutaceous, with adpressed hairs, blackish with a ferruginous undertone. The hind margin of tergite 2 fulvous. Apex of clasper truncate¹).

I regret to say that I have been unable to identify Thunberg's specimen with any certainty. I think that at present it is best to follow Roman (1912) and thus take the name "*laborator*" for the "other" taxon. The female is easily separated from the *tarsolenca* female (compare the key).

With respect to *Cryptus fabricii* Schiødte I can make the following observations. There are two syntypes in the Universitetets Zoologiske Museum at Copenhagen (a male and a female). A lectotype has not been selected up to now. As far as I can judge the male closely agrees with Dutch males of *Buathra laborator*. Through the kindness of Dr. B. Petersen I was able to study a female from Greenland. This specimen falls within the range of ordinary European material of *B. laborator*. I see no special reason to distinguish a subspecies for material from Greenland (Townes & Townes, 1962). Apart from *B. laborator laborator* and *B. laborator fabricii*, Townes & Townes (1962) recognized three other subspecies. A note on *Cryptus fulvipes* Magretti was given in the introduction.

Biology. — *Buathra laborator* is a parasite of Lepidoptera. The Laboratorium voor Entomologie at Wageningen (ELW) has a ♀ bred from a pupa of either a Noctuid or a Notodontid, found in a clump of grass at Wageningen. The cocoon of the wasp

¹) I believe this character to be unreliable.

measures 17 mm and is almost black in colour with a conspicuous greyish band in the middle. The aperture of escape lies immediately dorsad (or ventrad) of the pole. K. W. R. Zwart kindly informed me that he was able to breed this species on larvae of *Galleria mellonella* (Linné, 1758) which had just formed cocoons, thus suggesting a pupal parasite. Zwart found the larva to be ectoparasitic, as should be expected. In the laboratory also a cocoon of a ♂ wasp was obtained on *Galleria mellonella*. The colour of this cocoon is lighter than of the other specimen, but it also shows the central band (length: 14 mm).

Material examined. — Austria: ♀, Oberweiden, Marchfeld, A.i., leg. Hammer (coll. Priesner); ♀, Weidling, A.i. Wien, Mader (coll. Priesner). Denmark: ♀ ♂, Grønland (syntypes of *Cryptus fabricii* Schiødte) (MC); ♀, Grønland, leg. Vahl (Mus. Westernm.) as *C. glabrator* Zetter. (MC). England: ♂ ♀, England (no data) 1949 (coll. Betrem). France: ♀, BA, la Foux d'Allos, 1700 m, 29.VII.1964 (leg. M. C. and G. Kruseman) (MA), Germany: ♂, Ransern(?), 15.V.1890 (coll. Dittrich) (ZI); ♀, illegible, 4.VIII.1905 (coll. Dittrich) (ZI). Netherlands: ♀, Ellecom, 5.IX.1922 (coll. Koornneef) (ELW); ♀, 20.VI.1940 (coll. Koornneef) (ELW); ♂, Groesbeek, 2.VI.1898, leg. De Vos (coll. Oudemans) (MA); 2 ♀, Wageningen, 19.VI.1963 & 21.III.1965 (ELW); 3 ♀, Wageningen, resp. mother & 2 daughters & 1 ♂ (son) (leg. Zwart) (ELW); ♀, Neerijnen (Gld.), 15—30.VI.1950 (leg. C. de Jong) (RMNH); the following females from Rhenen (coll. Koornneef) (ELW) 29.V.1919; 16 & 18.VIII.1930; 12.VI.1932; 6 & 18.VIII.1933; 26.VII.1935; 1, 3 & 10.VIII.1935; 13.V.1936; 17, 26 & 27.VII.1936; 30.VII.1936 (2 sp.); 4.VIII.1936 (2 sp.); 11, 16 & 25.VIII.1936; 24 & 25.V.1937; 7.VI.1937; 2 ♂. Rhenen, 18.V.1934 (ELW); ♀, Hilversum, 17.VI.1952 (coll. den Hoed) (ELW). Poland: ♀, Nimptsch (south of Wroclaw) (coll. Dittrich) (ZI); 2 ♀, Podkowa Leśna ad Warszawa, 14.VI.1953 (4?) and 1 ♀, 26.VII.1953 (coll. J. Glowacki). Sweden: ♂, lectotype of *Ichneumon laborator* Thunberg (UU).

Buathra divisoria (Tschek, 1872)

Cryptus divisorius Tschek, 1872, Verh. zool.-bot. Ges. Wien 22: 235, ♀ ♂.

The type series (2 ♀ & 1 ♂) of *Cryptus divisorius* is extant and kept in the Vienna Museum. The species should be placed in the genus *Buathra*.

Characteristics of the lectotype of *Cryptus divisorius*. Female, 8.4 mm. Front wing 6.9 mm long. Labels: a white tag "1/10 866" in ink (Tschek's writing); a printed label "Tschek 1872 Piesting"; "divisorius Tsch. det. Habermehl." Lectotype hereby designated.

Head black. Labial and maxillary palpi brown. Mandibulae fuscous. Clypeus strongly convex, polished, with some scattered punctures. Face alutaceous, closely and finely punctured, with adpressed, silvery hairs. Facial convexity shown. Lower half of frons concave, polished, with some transverse ridges and conspicuous tentorial pits dorso-laterad of antennal sockets. Upper frons somewhat rugose. OOL-region alutaceous. Left antenna missing. Right antenna missing beyond 6th segment. Postanellus slender, index 6.6. OOL : diameter posterior ocellus, 1 : 1. OOL : POL, 3 : 4. Vertex somewhat coarse, with transverse wrinkling. Temple and gena polished towards outer orbit of compound eye, with scattered punctures. Toward genal carina with rather conspicuous

wrinkling. Temple and gena with short grey bristles. Lower part of gena directly beyond mandibular base with a concavity (compare Fig. 1). This character is rather difficult to observe when the head is pressed against pleuron 1. Malar space coriaceous, not quite $1.5 \times$ the mandibular breadth. Inner and outer orbits and spot on eye margin at vertex narrowly marked yellow.

Thorax black. Epomia strong. Mesoscutum polished, laterally with regular punctures, mesally somewhat coarse. Prescutal sutures well developed. Notum 1, episternum 2 and propodeum coarsely sculptured. Propodeum with anterior transverse carina present but weak. Posterior transverse carina well developed, sublaterally rather strongly dentated. Propodeal spiracles relatively small, index 2. Wings subhyaline. Nervulus (Cu-a) slightly antefurcal. Axillary vein (3A) in hind wing convergent to inner margin. Legs with front coxae, trochanters, femora (for the greater part), middle coxae, trochanters and femora (for the greater part) fuscous-ferruginous. Hind coxae and trochanters black, femora orange. Front tibia somewhat inflated, brownish. Tibiae and tarsi of other legs brown.

Gaster with first segment black. Other tergites finely coriaceous, dark brown. Ovipositor 2.8 mm. Ovipositor: hind tibia, 62 : 65 (Fig. 5).

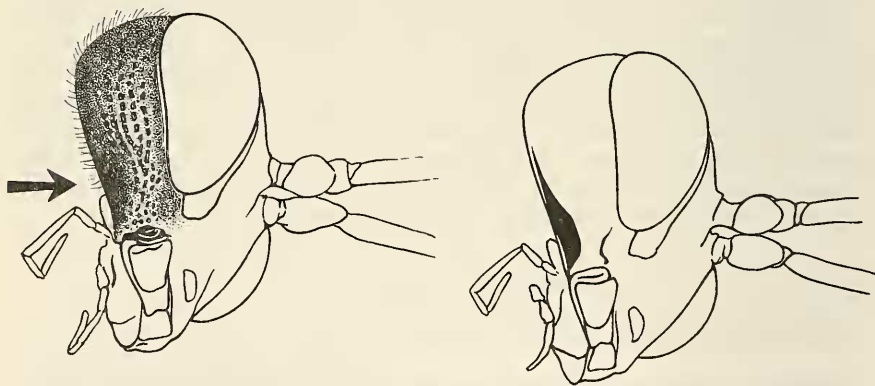


Fig. 1a, ♂, *Buathra divisoria* (Tschek), gena concave, Villnöss, 1965, leg. Van Rossem.

Fig. 1b, the same, schematically

Description of the male paralectotype of *Cryptus divisorius*. Length 9.0 mm. Front wing 6.3 mm long. Labels: a small green tag, a white printed label "Tschek 1872 Piesting", a box label "divisorius Kriech" (in purple ink), a white tag "divisorius Tsch. det. Habermehl".

Head black. Right antenna missing beyond 12th segment, left antenna missing beyond 5th segment. Deep tentorial pits present dorsolaterad of antennal sockets. Gena concave directly behind the mandibular base (Fig. 1). Yellow markings on: mandibles, clypeus, inner orbits with a continuation on malar space, outer orbits. Spot on eye margin in OOL-region.

Thorax black. Both propodeal transverse carinae well developed, the posterior one sublaterally dentated. Propodeal spiracle almost circular, index 1.3. Axillary vein (3A)

of hind wing convergent to inner hind margin. Legs with 2nd (partly), 3rd and 4th segment of hind tarsi white. Gaster with a ferruginous undertone.

Material examined: Austria: 2 ♀ & 1 ♂, Piesting, leg. Tschek, the type series of *C. divisorius* (NMW); 1 ♂, Obere Regalm, Kaisergebirge, Tirol, 1300 m, 9.VIII. 1959 (coll. Haeselbarth); 1 ♂, Vorderkeiserfelden, Waisergebidge, Tirol, 1500 m, 1.VII.1956 (coll. Haeselbarth). Italia: ♂, Funes (Villnöss) (prov. Bolzano) 1100—1400 m, 13—30.V.1965, leg. G. van Rossem (Pl. Prot. Serv.). Fürstentum Liechtenstein: ♀, Triesenberg, 1450 m, 1.IX.1969 (coll. Haeselbarth).

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